

Expanding knowledge One BUBBLE at a time . . .

User Manual

HODA Tools

OMR Studio

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1

Introduction to HODA Tools Package

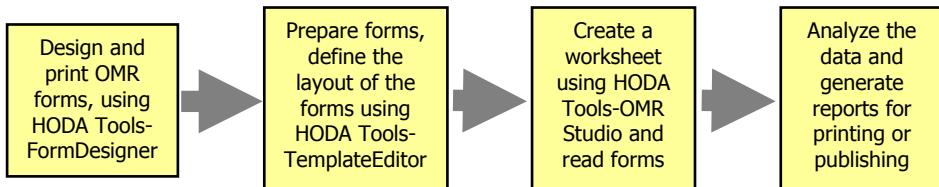
HODA Tools package consists of a set of software modules that satisfy all of your needs when using OMR devices. Using HODA Tools package you can design and print OMR forms to distribute between destination populations. Also you can define the layout of the OMR forms for axiome readers and finally read data from filled forms and analyze the results. HODA Tools package includes:

- **FormDesigner (HFD)** a tool to design and print OMR forms
- **TemplateEditor (HTE)** a tool to define the layout of the OMR forms
- **OMR Studio** the main tool of the package to do all OMR jobs such as reading the OMR forms, manipulating data, analyzing data and generating reports.

This manual is about the OMR Studio module of the package. For other modules please refer to the corresponding manuals.

How it works?

There are 4 main steps in HODA Tools, to process OMR forms. The first step is designing and printing OMR forms. To do this step, you can use FormDesigner module (**HFD**). After preparing the printed forms, you can distribute them between the destination populations to fill the forms. In the second step, you gather the filled forms and prepare them to read with the OMR machine. In this step using the TemplateEditor module (**HTE**) you can define the OMR items positions on the forms in a very simple fashion. In the third step, you can create a blank worksheet using the OMR Studio module, setup the OMR machine and read the forms. In the fourth step, you can analyze the result and generate different reports to visualize the result. The following diagram shows the above scenario.

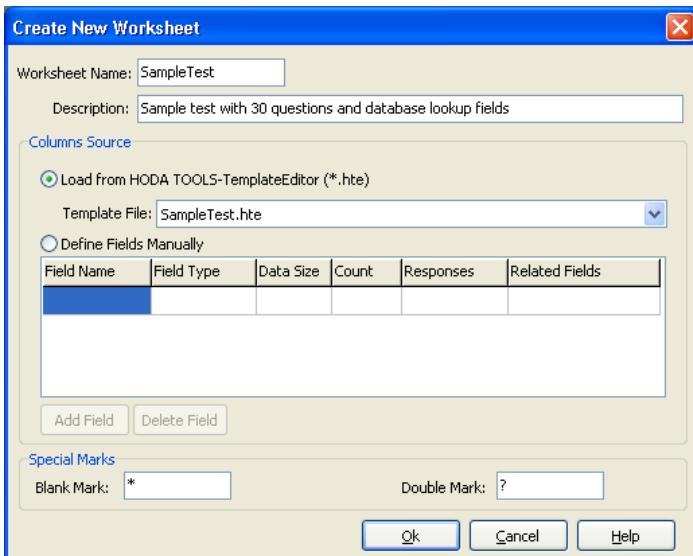


2

Reading OMR forms with axiome machines

Specify System Configuration

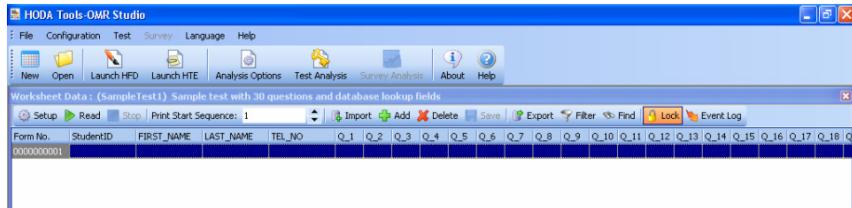
After creating a template for your OMR forms using **HTE** module, you are able to create a worksheet file. Open OMR Studio module and press **New** button from the main toolbar or Select File->New Worksheet from menu bar.



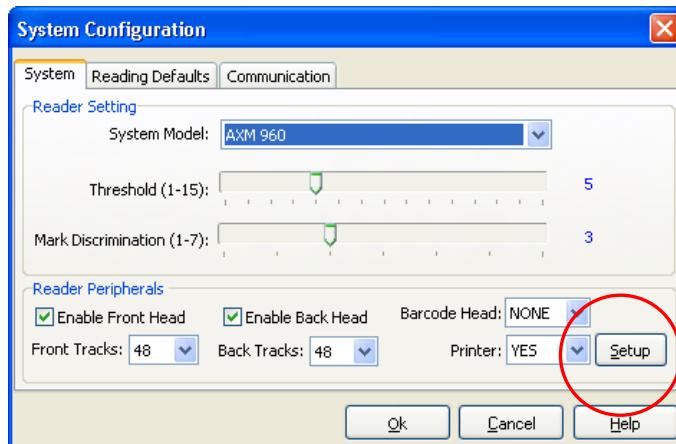
In the *Create New Worksheet* window you must specify worksheet name and select the template file you have created before using **HTE**. Also you can optionally enter a sentence as a description for your worksheet.

In special marks group box, you can specify *Blank Mark* and *Double Mark*. Default value for Blank Mark is '*' character and for Double Mark is '?' character. When the reader encounters a data field with blank value or a data field with more than one value it will replace them with Blank Mark and Double Mark respectively. Press **Ok** to create a new worksheet. OMR Studio will create and open the new

worksheet.



Before you start the reading process with your OMR device you must set the reader properties. Press **Setup** button from worksheet toolbar. The System Configuration window will appear:



In **System** tab you can select the model of your OMR device, Threshold and mark discrimination. Also you can enable and disable each of the heads and select number of tracks for each head. Also you can select number of barcode heads and presence of Printer in your device.

If the printer is available for your device, you can program it to print some useful information on read forms. To do this, press on the **Setup** button. The following form will appear:



If you select *Print Date* check box, date and time will be printed on the read forms. By entering *Accept Message* or *Reject Message*, you can print any strings on the forms, you want.

If you want to print sequence numbers on your forms, there are two possibilities:

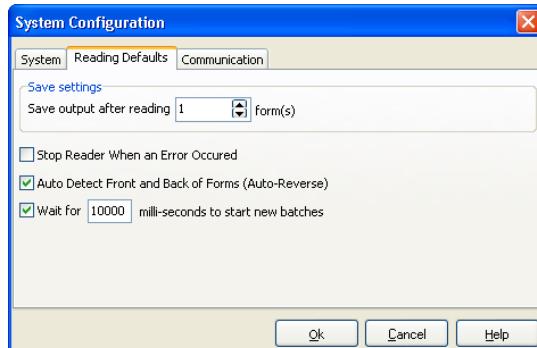
- Using the worksheet auto-sequence number to print sequences
- Entering a value as a start sequence when you want to start reading, in this case an entering edit will be available on the worksheet toolbar to enter the start sequence:



Also it is possible to print one of the OMR fields, you select from front or back side of forms. Even it is possible to print the score information on Test forms.

Important Note:

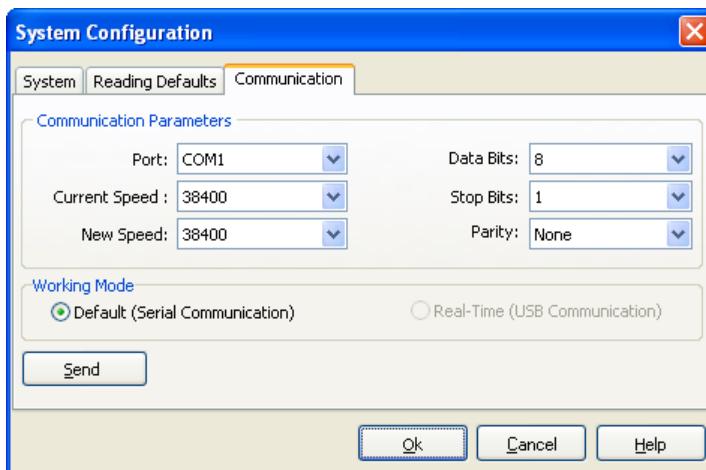
To use the score printing capability, you should have the Test Scoring license. To see more information about scoring, please refer to chapter 3- Analyzing OMR Data.



In **Reading Defaults** page you can specify the number of forms that will be read before each save operation. For example enter 8 in the edit box, means that data will be saved after reading eight forms. If you enter a larger value for this option, it reduces the number of disk operations and as result, the performance of the reading process will be improved.

Other options in this tab are:

- **Stop Reader When an Error Occurred:** this means that if some errors like *error in number of clock marks*, occurred in reading process, the reader will be stopped automatically.
- **Auto Detect Front and Back of Forms (Auto-Reverse):** this means that front and back sides of forms will be detected by the software automatically and there is no need to sort them before feeding to the device [refer to check bubble explanation on **HTE** manual].
- **Wait for N milli-seconds to start new batches:** this option is useful when you want to feed the reader with many batches of papers. To do that, you enter a time interval for example 7000 milliseconds. In this case the reader will wait 7 seconds if no form is ready on the feeder, so you have 7 seconds to place the next batch of papers in the device and press the start button of the reader. The reader will continue reading without stopping and there is no need to launch it again from software side.



The last tab of **System Configuration** window is for specifying communication parameters and working mode of the reader.

- *Port:* the port that the device is connected to it.
- *Data Bits:* number of data bits in serial communication.
- *Stop Bits:* number of stop bits in serial communication.
- *Current Speed:* the current speed of serial communication between PC and reader.
- *New Speed:* The new speed you want to set for serial communication

between PC and reader.

When you send the firmware to the reader, the speed will be set in 19200, so you need to increase the speed to 38400 (for serial ports only). In this case, enter 19200 for Current Speed and 38400 for New Speed and send it to the reader.

- **Parity:** presence and type of parity bits.
- **Working Mode:** can be Default mode that is for (Serial Communication-RS232) or Real-Time that is for USB communication.

By clicking on the **Send** button you can send all of communication properties to the reader and prepare it for reading.

Reading Facilities

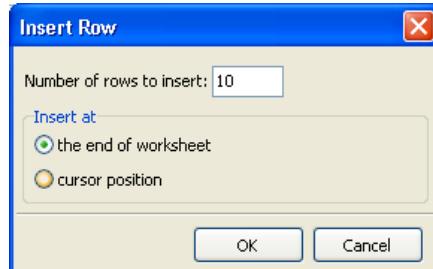
OMR Studio provides some facilities to help you in reading process of OMR forms and preparing data to analysis. These facilities are organized in worksheet toolbar and include:



- **Setup:** brings the setup form to configure OMR machine.
- **Read:** programs the reader to start reading forms.
- **Stop:** stops the reader.
- **Print Start Sequence:** if you select the user sequence from Setup Form/Printer/Setup, this option is available and you can enter a value as a start sequence.

NOTE: the above buttons only available, if you create a worksheet using a **HTE** template. If you want to change this value, be sure to press **ENTER** key after editing to accept the new value.

- **Import:** imports data to current worksheet. Please refer to chapter **Importing and Exporting Data** for more information.
- **Add:** adds a blank row at the end of the current worksheet. If you check the **Show Insert Options on Add** in Preferences form, the insert option form will appear as follows:

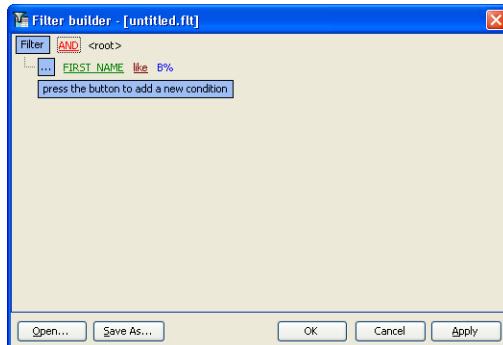


Using this form you can add any number of records to worksheet, at the end or at the cursor position.

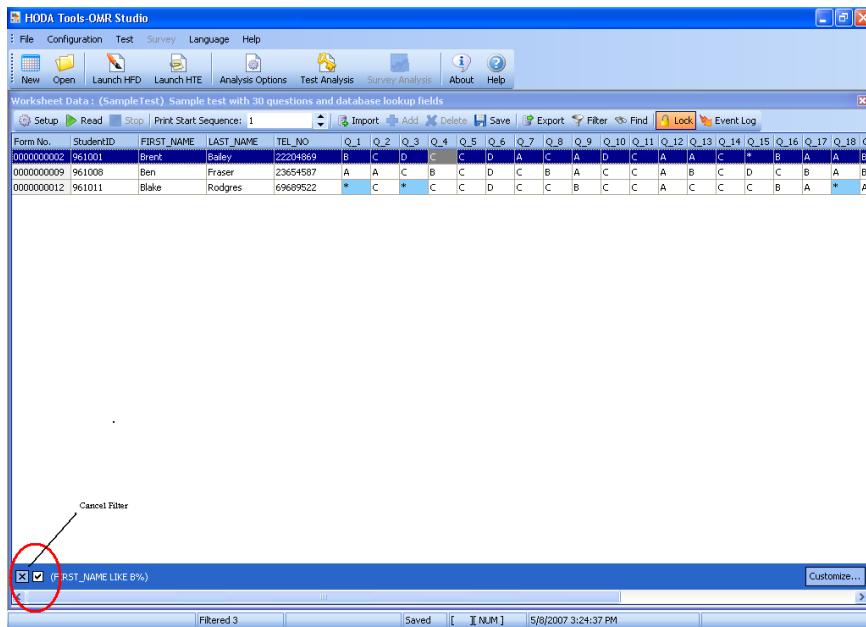
- **Delete Row:** deletes all selected rows.

NOTE:

- You can select multiple rows, by holding SHIFT or CTRL keys and click on the rows.
- You can use Ctrl+A to select all records on the worksheet
- **Save:** Saves last changes, you made on the worksheet data. The worksheet data is saved in text format with data fields delimited with ',' character.
- **Export:** exports the worksheet data to different destinations. Please refer to chapter **Importing and Exporting Data** for more information.
- **Filter:** opens **Filter Criteria** window in which you can specify filtering conditions and filter worksheet data. Filtering criteria are consist of multiple conditions which can be combined with AND or OR logical operators. In each part of filtering criteria you can select a column name and a comparison operator like =, >=, <=...and a value (or list) to compare.

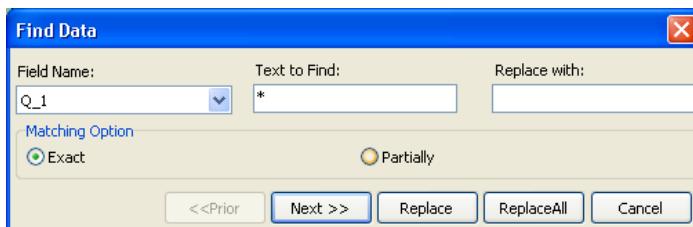


After applying the filter, only the records which match with filter conditions will be displayed on the worksheet. For example, in the following picture the worksheet shows only the records which their FIRST_NAME field starts with 'B' character.



NOTE:

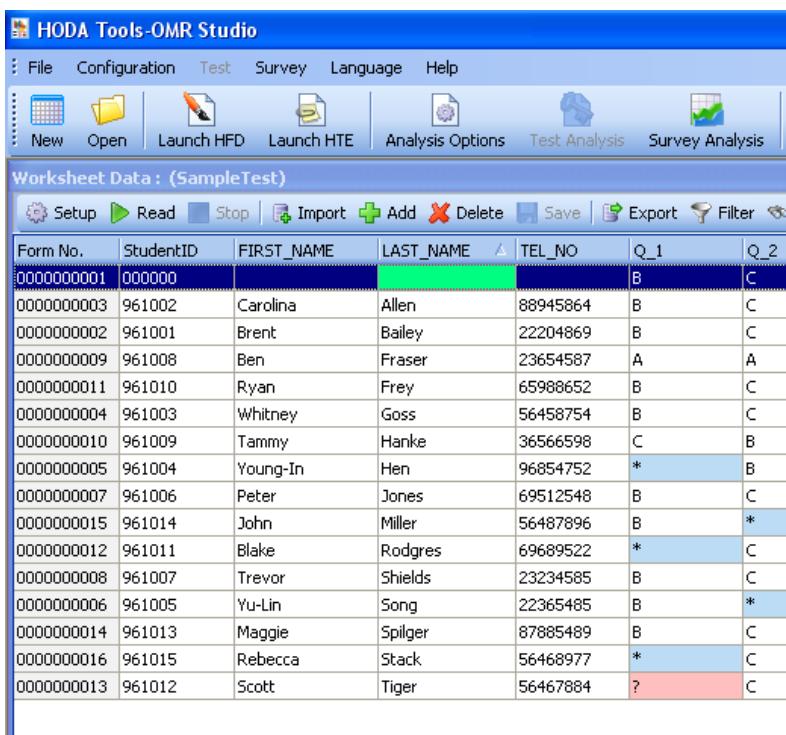
- If you apply the filter on worksheet records, reports for Test and Survey analysis will be generated only for filtered records. This is a useful capability to do analysis operations only for some special records.
- To cancel the filter and show all records again, press the cancel button, which is specified in the above picture.
- **Find:** opens **Find Data** window in which you can specify a field name and a search value. Also you can perform exact and partial matching compare. After you press **Find** button the rows that match to your searching conditions will be highlighted and you can navigate through them with **Next** and **Previous** buttons. Also you can replace values of selected columns of highlighted rows. To do this, enter new value on the **Replace With** edit box and press **Replace** or **ReplaceAll** buttons.



- **Lock:** Locks the worksheet and prevents user from modifying data.
- **Event Log:** Shows/Hides the list of events that is logged during execution of the program. The content of this list is appended to a file with the same name as the worksheet data file and with the extension .ERR each time a worksheet is closed. This list contains information of all events occurred during execution of the program such as errors occurred during reading OMR forms and runtime exceptions information. The time and date of each event is also presented. It is recommended to show event log while you read OMR forms.

NOTE:

If you want to sort the worksheet data based on one of the columns, just click on the column title. In this case the worksheet data will be sorted in *ascending* order. If you click on the sorted column title again, the worksheet data will be sorted in *descending* order. To remove the sort from the sorted column, hold the CTRL key and press on that column title. The following picture shows a worksheet which is sorted based on the LAST_NAME column.



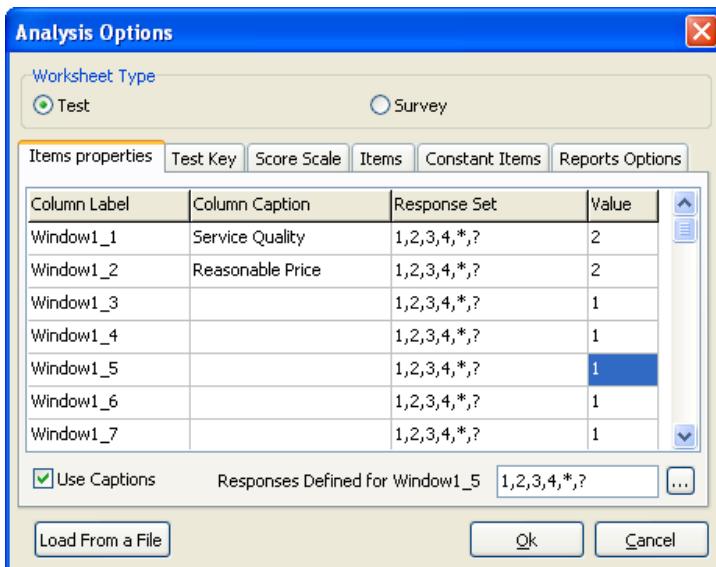
The screenshot shows the HODA Tools-OMR Studio application window. The menu bar includes File, Configuration, Test, Survey, Language, and Help. The toolbar contains icons for New, Open, Launch HFD, Launch HTE, Analysis Options, Test Analysis, and Survey Analysis. The main window title is "Worksheet Data : (SampleTest)". Below the title is a toolbar with buttons for Setup, Read, Stop, Import, Add, Delete, Save, Export, and Filter. The main area is a data grid with the following columns: Form No., StudentID, FIRST_NAME, LAST_NAME, TEL_NO, Q_1, and Q_2. The data grid contains 18 rows of student information. The "LAST_NAME" column is sorted in ascending order, as indicated by the blue header and the sorted data. The "Q_1" column contains grades (B, C, A, *) and the "Q_2" column contains letters (C, B, A, *). The "TEL_NO" column contains phone numbers, and the "StudentID" column contains student IDs.

Form No.	StudentID	FIRST_NAME	LAST_NAME	TEL_NO	Q_1	Q_2
0000000001	000000					
0000000003	961002	Carolina	Allen	88945864	B	C
0000000002	961001	Brent	Bailey	22204869	B	C
0000000009	961008	Ben	Fraser	23654587	A	A
0000000011	961010	Ryan	Frey	65988652	B	C
0000000004	961003	Whitney	Goss	56458754	B	C
0000000010	961009	Tammy	Hanke	36566598	C	B
0000000005	961004	Young-In	Hen	96854752	*	B
0000000007	961006	Peter	Jones	69512548	B	C
0000000015	961014	John	Miller	56487896	B	*
0000000012	961011	Blake	Rodgres	69689522	*	C
0000000008	961007	Trevor	Shields	23234585	B	C
0000000006	961005	Yu-Lin	Song	22365485	B	*
0000000014	961013	Maggie	Spilger	87885489	B	C
0000000016	961015	Rebecca	Stack	56468977	*	C
0000000013	961012	Scott	Tiger	56467884	?	C

3 Analyzing OMR data

Specifying Analysis Options

Before starting data Analysis you must specify Analysis options. If your data is ready to analyze, press **Analysis Options** button in main toolbar or select **Analysis Options** from the Configuration menu. The Analysis Options will appear and you can specify different analysis options.



Worksheet type

Worksheet Type can be **Test** or **Survey**. Test worksheet type is useful for test questionnaires. In these questionnaires each question may have several choices and each choice can be Right or Wrong. The score of a respondent is usually calculated by summation of the number of questions that is answered correctly.

Survey worksheet type is useful for survey questionnaires that are used to evaluate some topics in an environment such as evaluation of teachers in a university by students or doctors and services in a hospital by patients

and so on.

There are several tabs in Analysis Options form, in this section you can find more information about them.

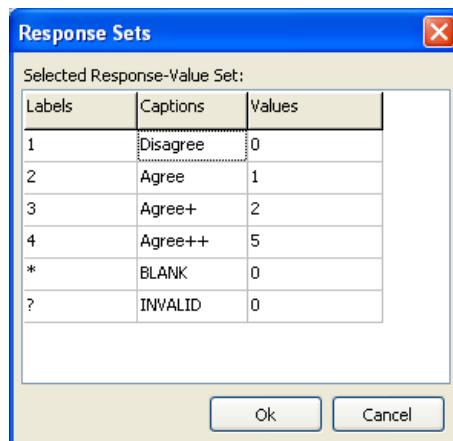
Items properties

In **Items Properties** tab you can specify a caption for each question.

This is useful for survey questionnaires that each question has a special meaning and you want to see its caption in the worksheet. To do this, simply type the caption you prefer in front of the question in column caption and then check the **Use Captions** checkbox. Also you can give to each question a value that will be used in calculation of scores. If all questions have the same values give the value 1 to all of them and if some questions have more values give value 2 or more.

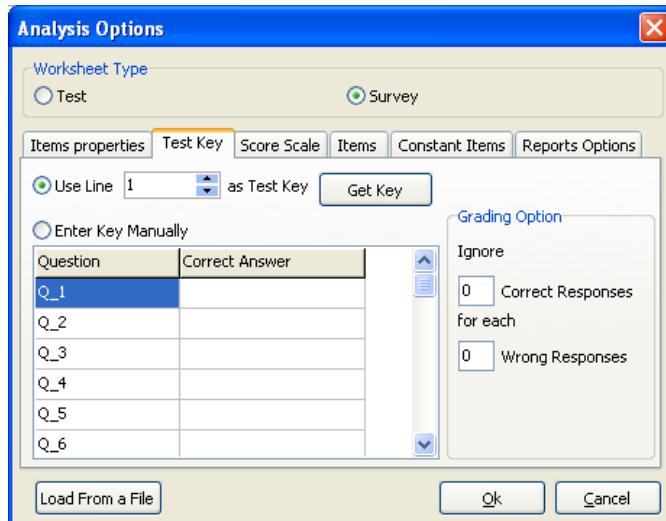
Also each Response can have a value and a caption for presenting in reports you will generate. This is useful for survey questionnaires that some answers can be more valuable from others. If you don't specify any cap-

tion for answers default captions will appear in reports. Click  button at the bottom of **Items Properties** tab. the **Response Sets** window will appear and you can specify Responses properties (captions and values).



Test Key and Grading Option

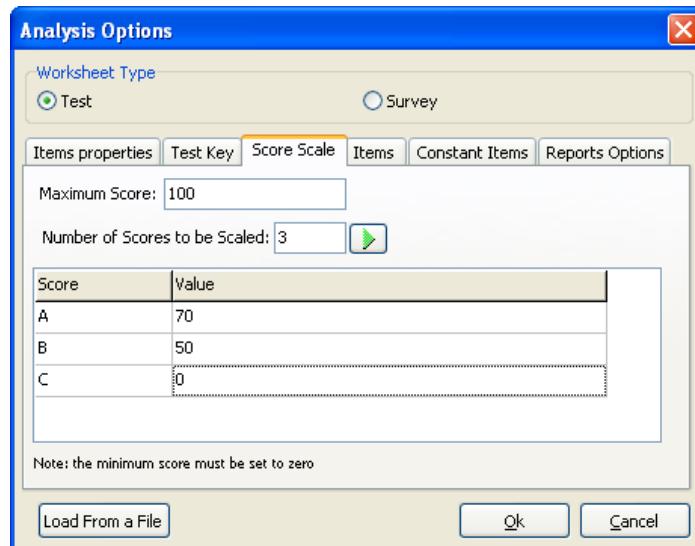
Test Key tab is enabled only for test worksheets. In test exams you must specify test key which is used in test scoring and calculating respondent scores. You can enter correct answers in the Test Key tab manually or select the choice Use Line **N** as Key. This means that the **N**'th row of worksheet contains correct answers for all questions. To set a line as a test key, enter the line number and press **Get Key** button; In this case the color of the selected line will be changed to green.



In **Grading Options** you can enter two numbers: the first is the number of correct answers that will be ignored for defined number of wrong answers in the second. For example if you enter 1 and 4 in the first and second edit boxes, 1 correct answer will be ignored for each 4 wrong answers. Entering zero value for two edit boxes means that no correct answer will be ignored for any wrong answer.

Score Scale

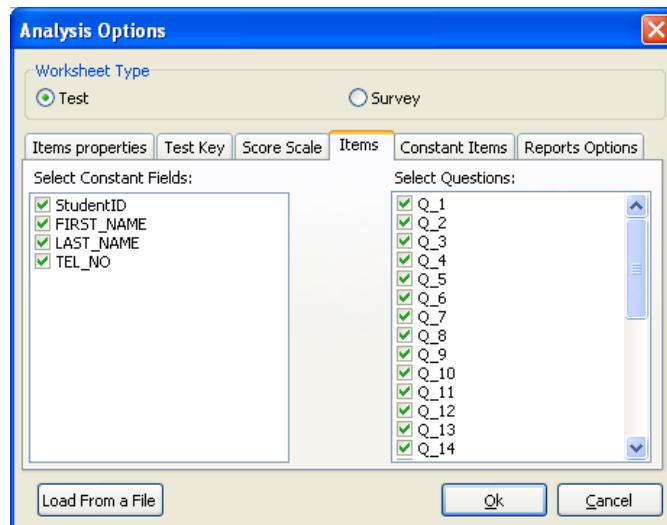
In the **Score Scale** tab you must enter a number as maximum score. This number is used to calculating total scores of respondents in test exams and surveys. For example in test exams if a respondent had answered all of questions correctly then his/her total score will be equal the value of maximum score that you have entered here. Also you can specify levels of grading according to maximum score. For example if the maximum score value is 100 then you can have 3 grading levels such as **A** for scores more than 70, **B** for scores more than 50 and **C** for scores more than 0. Note that the last level's value always must be set to zero.



Selecting Items to Contribute in Analysis and Generated Reports

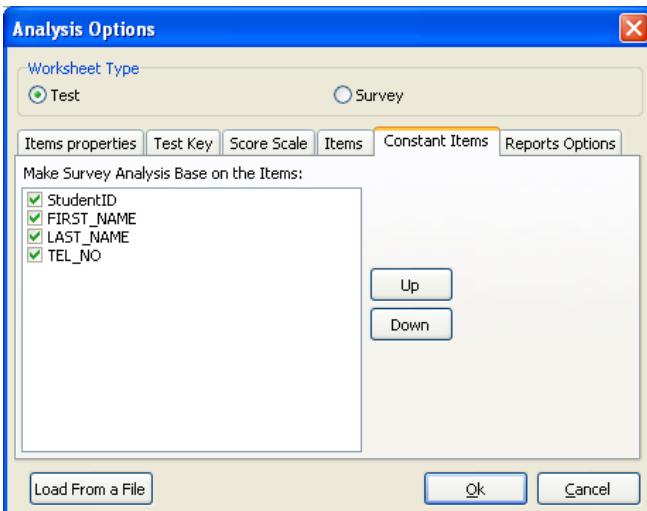
In the **Items** tab you can see two item lists. From the left list you can select or deselect constant items such as ID numbers or unique codes. All selected items of this section will appear in respondent reports.

From the right list, you can select or deselect the questions. If you deselect a question from list, it will not contribute in analysis and calculating scores and not be shown in analysis reports.



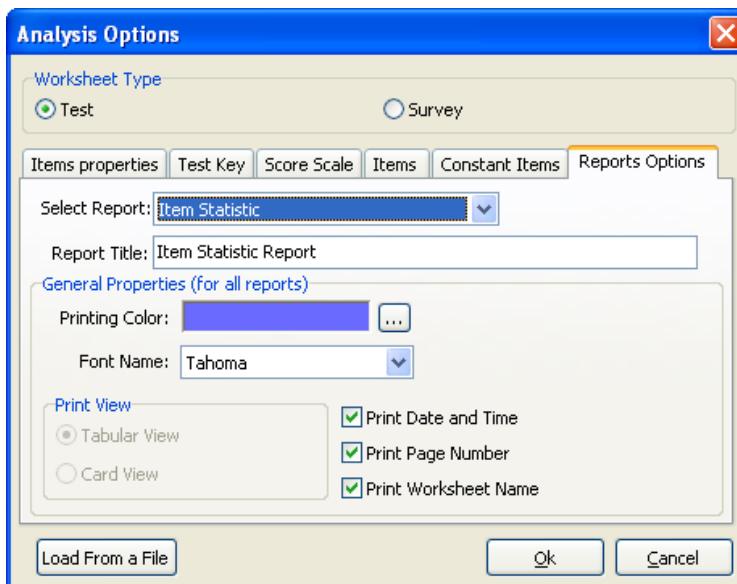
Specifying the order and level of detailing in Survey Respondent Reports

The **Constant Items** tab is enabled only for **Survey** worksheets. Selected items will be considered in the order that appear in the list and you can change the order as you want. This order will affect **Survey Respondent Summary** and **Survey Respondent Detail** reports, because items will be grouped according to this order. Unselected items will not contribute in *Grouping Data*. So if you want reports with more detailed items, you must select your required items.



Print Report Options

The last tab of **Options** window is **Reports Options** in which you can customize printing properties of your reports. For each report you can specify a title that will appear at top of the report. Also you can choose to print date and time, page number, worksheet name, printing color and printing font. In **Survey Respondent Reports** you can choose **Tabular View** or **Card View**. **Tabular View** is normal view but if you choose **Card View** each group of report is printed in a separated page.



Analyzing Test Data

There are six different types of reports that can be generated from test questionnaires. **Item Statistics** and **Item Analysis** Reports analyze question typed items (test items). **Respondent Reports** calculate some values such as scores, grades and ranks for each respondent contributed in the exam. In this section a brief description of each report is presented.

Note: Each report will be showed in a tabular fashion and you can export it to other file formats like text, excel or word documents (please refer to chapter 6 for more information on export). Also you can preview and print the reports directly by click on *Print* button. In the preview form you can print the report on printer, or save it to another file formats for publishing purposes. You can save your report in **PDF, RTF** (Microsoft Word), **Excel, Html, Text, Jpeg** or **Bitmap** formats.

Item Statistics Report

Item Statistic Report

This screenshot shows the 'Item Statistic Report' window. The menu bar includes 'Print Tabular', 'Print Card', 'Bar Chart', 'Pie Chart', 'Line Chart', 'Area Chart', 'Values' (which is highlighted in orange), 'Percents', 'Export', and 'Exit'. The table below contains 16 rows of data, each representing a question (Q_1 to Q_16) with columns for Test Name, Filled, Missed, Average, Variance, Standard Deviation, Standard Error, Maximum, Minimum, Mean, and Range.

No.	Test_Name	Filled	Missed	Average	Variance	St._Deviation	St._Error	Maximum	Minimum	Mean	Range
1	Q_1	12	3	1.83	0.47	0.69	0	3	0	2	3
2	Q_2	13	2	2.69	0.37	0.61	0	3	0	3	3
3	Q_3	14	1	3.57	1.1	1.05	0	4	0	4	4
4	Q_4	13	2	2.69	0.52	0.72	0	4	0	3	4
5	Q_5	14	1	3	0.14	0.38	0	4	0	3	4
6	Q_6	15	0	4	0	0	0	4	4	4	0
7	Q_7	15	0	2	1.47	1.21	0	4	1	2	3
8	Q_8	15	0	2.73	0.33	0.57	0	3	1	3	2
9	Q_9	15	0	1.33	0.62	0.79	0	4	1	1	3
10	Q_10	15	0	3.07	0.06	0.25	0	4	3	3	1
11	Q_11	14	1	2.64	0.66	0.81	0	3	0	3	3
12	Q_12	15	0	1.33	0.62	0.79	0	4	1	1	3
13	Q_13	14	1	2.36	1.09	1.04	0	4	0	2	4
14	Q_14	15	0	2.6	0.37	0.61	0	3	1	3	2
15	Q_15	14	1	3.43	0.96	0.98	0	4	0	4	4
16	Q_16	15	0	2.07	0.2	0.44	0	3	1	2	2

Print Preview

This screenshot shows the 'Print Preview' window. It displays the 'Item Statistics Report' with a header 'Item Statistics R' and a date '5/9/2007 5:06:15 PM'. The table data is identical to the one in the Item Statistic Report window. The preview includes a toolbar with various print and layout options.

No.	Test Name	Filled	Missed	Average	Variance	St. Dev	St. error	Max	Min	Mean	Range
1	Q_1	12	3	1.83	0.47	0.69	0	3	0	2	3
2	Q_2	13	2	2.69	0.37	0.61	0	3	0	3	3
3	Q_3	14	1	3.57	1.1	1.05	0	4	0	4	4
4	Q_4	13	2	2.69	0.52	0.72	0	4	0	3	4
5	Q_5	14	1	3	0.14	0.38	0	4	0	3	4
6	Q_6	15	0	4	0	0	0	4	4	4	0
7	Q_7	15	0	2	1.47	1.21	0	4	1	2	3
8	Q_8	15	0	2.73	0.33	0.57	0	3	1	3	2
9	Q_9	15	0	1.33	0.62	0.79	0	4	1	1	3
10	Q_10	15	0	3.07	0.06	0.25	0	4	3	3	1
11	Q_11	14	1	2.64	0.66	0.81	0	3	0	3	3

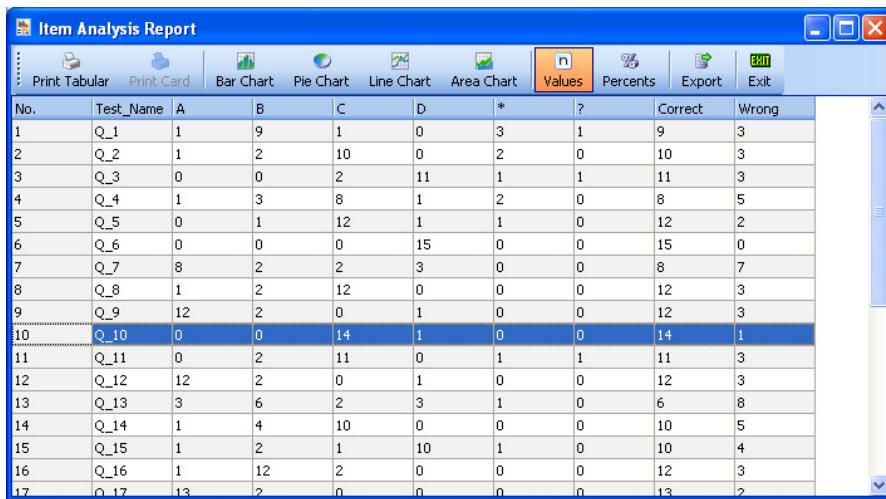
Generated Pages: 1

In this report some statistical indicators are calculated for each test item. These statistical parameters include:

- **Filled:** Number of respondents that fill an answer for a question.

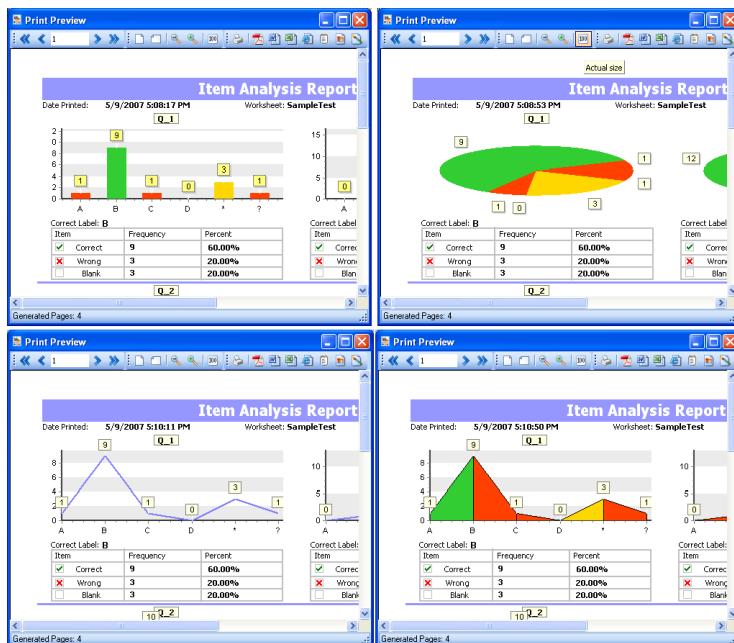
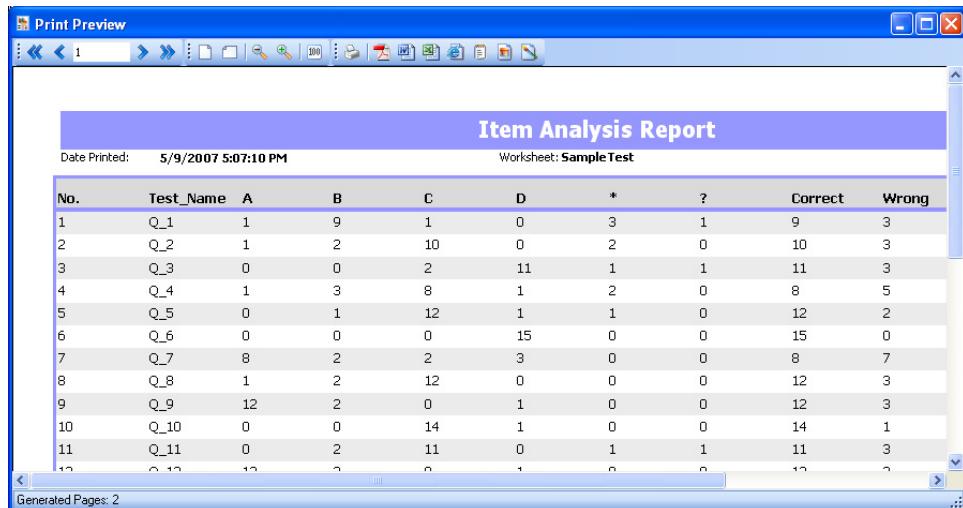
- **Missed:** Number of respondents that don't fill any answer for a question.
- **Average:** Average of answers filled for a question by all respondents.
- **Variance:** Variance of answers filled for a question by all respondents.
- **Standard Deviation:** Is the square root of variance.
- **Maximum:** Maximum Value of answers respondents have chosen for a question.
- **Minimum:** Minimum Value of answers respondents have chosen for a question.
- **Mean:** Mean or median of answers respondents have chosen for a question.
- **Range:** Difference of maximum and minimum.
- **Sum of Values:** Summation of values of all answers respondents have chosen for a question.
- **Sum of Square Roots:** Summation of square root of all answers respondents have chosen for a question.

Item Analysis Report



No.	Test_Name	A	B	C	D	*	?	Correct	Wrong
1	Q_1	1	9	1	0	3	1	9	3
2	Q_2	1	2	10	0	2	0	10	3
3	Q_3	0	0	2	11	1	1	11	3
4	Q_4	1	3	8	1	2	0	8	5
5	Q_5	0	1	12	1	1	0	12	2
6	Q_6	0	0	0	15	0	0	15	0
7	Q_7	8	2	2	3	0	0	8	7
8	Q_8	1	2	12	0	0	0	12	3
9	Q_9	12	2	0	1	0	0	12	3
10	Q_10	0	0	14	1	0	0	14	1
11	Q_11	0	2	11	0	1	1	11	3
12	Q_12	12	2	0	1	0	0	12	3
13	Q_13	3	6	2	3	1	0	6	8
14	Q_14	1	4	10	0	0	0	10	5
15	Q_15	1	2	1	10	1	0	10	4
16	Q_16	1	12	2	0	0	0	12	3
17	Q_17	13	?	0	0	0	0	13	2

In this report, total number of each possible choice for a question will be counted and total count of correct and wrong answers will be calculated. Using this report, you can assign a difficulty degree for each of questions. Also you can print this report in chart view. There are four chart type include: **Bar**, **Pie**, **Line** and **Area**.



Print Preview

1

100

Respondent Item Analysis

Date Printed: 5/9/2007 5:12:29 PM Worksheet: SampleTest

StudentID FIRST-NAME LAST-NAME Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18

StudentID	FIRST-NAME	LAST-NAME	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
961001	Brent	Bailey	<input checked="" type="checkbox"/>																	
961002	Carolina	Allen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
961003	Whitney	Goss	<input checked="" type="checkbox"/>																	
961004	Young-In	Hen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
961005	Yu-Lin	Song	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Generated Pages: 2

Respondent Item Analysis

This report prints a graphical representation of the worksheet comparing the values that respondents have chosen, with the test key and shows  for each correct answer,  for each wrong answer and  for each blank answer.

Respondent Detail Report

Respondent Detail Report															
Print Tabular		Print Card		Bar Chart		Pie Chart		Line Chart		Area Chart		Values	Percents	Export	Exit
No.	StudentID	FIRST_NAME	LAST_NAME	Test_Name	Correct	Wrong	Blank	Double	Score	Grade	Rank				
1	961001	Brent	Bailey	Q	25	3	2	0	83.33	A	3				
2	961002	Carolina	Allen	Q	19	10	1	0	63.33	B	7				
3	961003	Whitney	Goss	Q	22	8	0	0	73.33	A	5				
4	961004	Young-In	Hen	Q	18	10	1	1	60	B	8				
5	961005	Yu-Lin	Song	Q	19	8	3	0	63.33	B	7				
6	961006	Peter	Jones	Q	19	10	1	0	63.33	B	7				
7	961007	Trevor	Shields	Q	29	0	1	0	96.67	A	1				
8	961008	Ben	Fraser	Q	19	10	1	0	63.33	B	7				
9	961009	Tammy	Hanke	Q	20	8	1	1	66.67	B	6				
10	961010	Ryan	Frey	Q	28	1	0	1	93.33	A	2				
11	961011	Blake	Rodgres	Q	19	8	3	0	63.33	B	7				
12	961012	Scott	Tiger	Q	19	10	0	1	63.33	B	7				
13	961013	Maggie	Spilger	Q	20	9	1	0	66.67	B	6				
14	961014	John	Miller	Q	24	5	1	0	80	A	4				
15	961015	Rebecca	Stack	Q	20	9	1	0	66.67	B	6				

Print Preview

1

5/9/2007 4:05:13 PM

Worksheet: Sample Test

Respondent Detail Report

No.	StudentID	FIRST_NAME	LAST_NAME	Test_Name	Correct	Wrong	Blank	Double	Score	Grade	Rank
1	961001	Brent	Bailey	Q	25	3	2	0	83.33	A	3
2	961002	Carolina	Allen	Q	19	10	1	0	63.33	B	7
3	961003	Whitney	Goss	Q	22	8	0	0	73.33	A	5
4	961004	Young-In	Hen	Q	18	10	1	1	60	B	8
5	961005	Yu-Lin	Song	Q	19	8	3	0	63.33	B	7
6	961006	Peter	Jones	Q	19	10	1	0	63.33	B	7
7	961007	Trevor	Shields	Q	29	0	1	0	96.67	A	1
8	961008	Ben	Fraser	Q	19	10	1	0	63.33	B	7
9	961009	Tammy	Hanke	Q	20	8	1	1	66.67	B	6
10	961010	Ryan	Frey	Q	28	1	0	1	93.33	A	2
11	961011	Blake	Rodriges	Q	19	8	3	0	63.33	B	7
12	961012	Scott	Tiger	Q	19	10	0	1	63.33	B	7
13	961013	Maggie	Spilger	Q	20	9	1	0	66.67	B	6
14	961014	John	Miller	Q	24	5	1	0	80	A	4
15	961015	Rebecca	Stadi	Q	20	9	1	0	66.67	B	6

Generated Pages: 1

This report calculates number of correct, wrong, blank and double answers for all respondents in each test field separately. Also total score, grade and rank of the respondent is calculated for each test field. This report is also available in **Card View** format. In card view print, separated workbooks will print for each respondent.

Print Preview

1

5/9/2007 4:06:07 PM

Respondent Detail Report

StudentID: 961001	FIRST_NAME: Brent	LAST_NAME: Bailey					
Test_Name	Correct	Wrong	Blank	Double	Score	Grade	Rank
Q	25	3	2	0	83.33	A	3
Total	25	3	2	0	83.33	A	3
Date Printed:	5/9/2007 4:06:07 PM						

StudentID: 961002	FIRST_NAME: Carolina	LAST_NAME: Allen					
Test_Name	Correct	Wrong	Blank	Double	Score	Grade	Rank
Q	19	10	1	0	63.33	B	7
Total	19	10	1	0	63.33	B	7
Date Printed:	5/9/2007 4:06:07 PM						

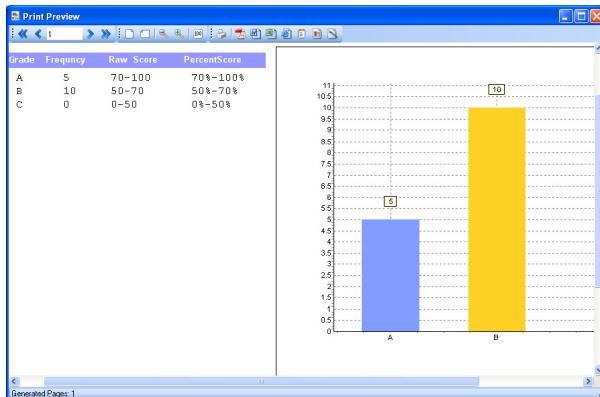
Generated Pages: 3

Respondent Summery Report

Respondent Summary Report										
No.	StudentID	FIRST_NAME	LAST_NAME	Correct	Wrong	Blank	Double	Score	Grade	Rank
1	961001	Brent	Bailey	25	3	2	0	83.33	A	3
2	961002	Carolina	Allen	19	10	1	0	63.33	B	7
3	961003	Whitney	Goss	22	8	0	0	73.33	A	5
4	961004	Young-In	Hen	18	10	1	1	60	B	8
5	961005	Yu-Lin	Song	19	8	3	0	63.33	B	7
6	961006	Peter	Jones	19	10	1	0	63.33	B	7
7	961007	Trevor	Shields	29	0	1	0	96.67	A	1
8	961008	Ben	Fraser	19	10	1	0	63.33	B	7
9	961009	Tammy	Hanke	20	8	1	1	66.67	B	6
10	961010	Ryan	Frey	28	1	0	1	93.33	A	2
11	961011	Blake	Rodgres	19	8	3	0	63.33	B	7
12	961012	Scott	Tiger	19	10	0	1	63.33	B	7
13	961013	Maggie	Spilger	20	9	1	0	66.67	B	6
14	961014	John	Miller	24	5	1	0	80	A	4
15	961015	Rebecca	Stack	20	9	1	0	66.67	B	6

This report calculates number of correct, wrong, blank, double answer for all respondents totally in all questions of the questionnaire. Also total score, grade and rank of the respondent is calculated totally in all questions.

Frequency Distribution Report



This report shows the frequency of each grade level in a test exam. For example if you have defined 3 grade levels A, B, C the number of respondents that get each of these levels are counted.

Analyzing Survey Data

Item Statistics Report

This Report is same as **Test Item Statistics Report**.

Item Analysis Report

This Report is same as **Test Item Analysis Report**.

Survey Respondent Detail

We describe this report by an example. This example shows a survey that its goal is evaluation of teachers in a university. In this example there is a field named TeacherID that maintains teacher ID numbers and 10 questions named Q_1 to Q_10. In this worksheet we connect the TeacherID field to T_Name and T_Family fields from an existing database. In this case the 2 new fields T_Name and T_Family, which are filled by OMR Studio, automatically. You can see a sample worksheet data in the following picture:

Survey Respondent Detail Report																				
No.	TeacherID	T_NAME	T_FAMILY	Test_Name	Disagree	Agree	Agree+	Agree++	BLANK	DOUBLE	Total_Score	Average	Variance	St_Deviation	Grade	Rank	Values	Percents	Export	Exit
1	101	Peter	Fink	Q_1	0	1	1	3	0	0	86	8.6	4.8	2.19	A	4				
2	101	Peter	Fink	Q_2	0	0	0	4	1	0	80	10	0	0	A	6				
3	101	Peter	Fink	Q_3	0	0	1	3	0	1	76	7.6	18.8	4.34	A	8				
4	101	Peter	Fink	Q_4	1	1	3	0	0	0	58	5.8	12.2	3.49	B	14				
5	101	Peter	Fink	Q_5	0	2	3	0	0	0	68	6.8	2.7	1.64	B	10				
6	101	Peter	Fink	Q_6	0	0	4	0	1	0	64	8	0	0	B	12				
7	101	Peter	Fink	Q_7	0	0	2	3	0	0	92	9.2	1.2	1.1	A	3				
8	101	Peter	Fink	Q_8	0	0	2	3	0	0	92	9.2	1.2	1.1	A	3				
9	101	Peter	Fink	Q_9	0	2	3	0	0	0	68	6.8	2.7	1.64	B	10				
10	101	Peter	Fink	Q_10	0	0	2	2	0	1	72	7.2	17.2	4.15	A	9				
11	102	Melissa	Brown	Q_1	0	0	2	2	1	0	72	9	1.33	1.15	A	9				
12	102	Melissa	Brown	Q_2	0	0	0	5	0	0	100	10	0	0	A	1				
13	102	Melissa	Brown	Q_3	0	0	1	4	0	0	96	9.6	0.8	0.89	A	2				
14	102	Melissa	Brown	Q_4	1	1	2	1	0	0	62	6.2	15.2	3.9	B	13				
15	102	Melissa	Brown	Q_5	0	0	0	2	3	0	40	10	0	0	C	16				
16	102	Melissa	Brown	Q_6	1	0	2	1	1	0	52	6.5	19.67	4.43	B	15				
17	102	Melissa	Brown	Q_7	0	3	1	1	0	0	66	6.6	5.3	2.3	B	11				
18	102	Melissa	Brown	Q_8	0	1	1	2	0	1	66	6.6	17.8	4.22	B	11				
19	102	Melissa	Brown	Q_9	0	0	4	1	0	0	84	8.4	0.8	0.89	A	5				
20	102	Melissa	Brown	Q_10	0	1	3	1	0	0	78	7.8	3.2	1.79	A	7				

In the TeacherID column you can see 2 different ID numbers: 101 and 102, each for a different teacher. In Survey Respondent Report for each teacher's ID number OMR Studio counts each possible answer can be selected for each question separately. For example as you can see in the next picture for teacher ID number 101, three students have selected 'Agree++' choice for the Q_1 question. Also total score, average, variance, standard deviation, grade

and rank for each question is computed.

The screenshot shows the HODA Tools-OMR Studio interface. The main window displays a 'Worksheet Data : (SampleSurvey)' grid with 10 rows of data. The columns are labeled: Form No., TeacherID, T_NAME, T_FAMILY, Q_1, Q_2, Q_3, Q_4, Q_5, Q_6, Q_7, Q_8, Q_9, and Q_10. The data includes teacher names like Peter and Melissa, and responses like 'Agree++' and 'BLANK'. The 'Event Log' panel at the bottom shows a list of log entries, including 'Worksheet Data is UnLocked' and 'Worksheet Data is Locked'. The bottom status bar shows the date and time as 5/9/2007 4:37:22 PM.

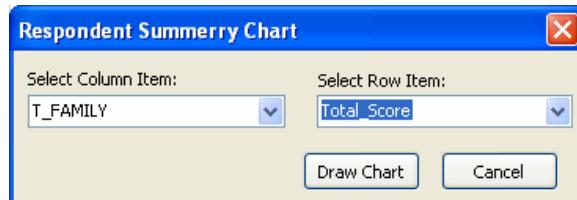
Survey Respondent Summary

This report is similar to previous report, but in this report OMR Studio calculates all report items such as count of possible choices and average for each teacher ID number totally and without respecting to separate questions. For above example Survey Respondent Summery Report is shown below:

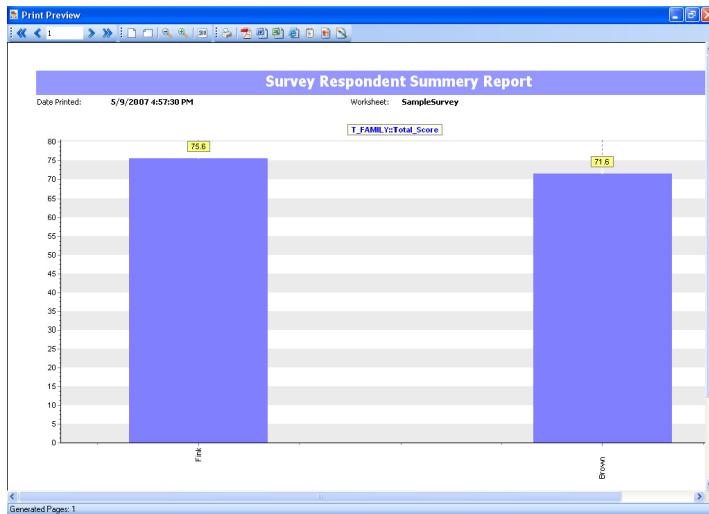
The screenshot shows the 'Survey Respondent Summary Report' interface. The top menu includes 'Print Tabular', 'Print Card', 'Bar Chart', 'Pie Chart', 'Line Chart', 'Area Chart', 'Values' (which is highlighted in orange), 'Percents', 'Export', and 'Exit'. The main table displays data for two teachers, Peter and Melissa, across various questions. The table includes columns for TeacherID, T_NAME, T_FAMILY, Disagree, Agree, Agree+, Agree++, BLANK, DOUBLE, Total_Score, Average, Variance, St_Deviation, Grade, and Rank. Below the table, there are buttons for 'Bar Chart', 'Pie Chart', 'Line Chart', and 'Area Chart'.

A chart view for Respondent Summery Report can be generated. Press on dif-

ferent chart buttons and select two fields in **Respondent Summery Chart** window appeared.

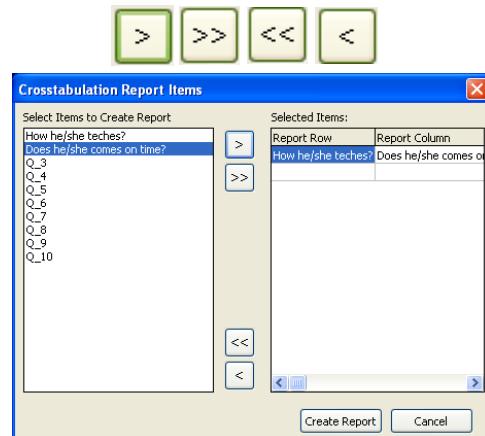


Then press **Draw Chart** button. A chart will appear that shows the values of selected fields in a diagram.



Cross tabulation Report

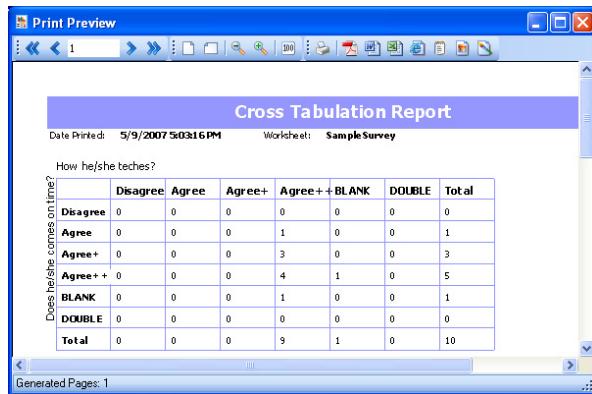
To generate this report you must select binary groups of items by selecting them from the left list and add them to the right one. After selection the desired pair of questions, press the **Create Report** button. You can add and remove items to your list easily, using arrow buttons:



The following picture shows a sample crosstabulation report. In this example the caption for 2 questions is entered as *How he/she Teaches?* and *Does he/she comes on time?*. Also for more comprehension, the caption of responses changed to Disagree, Agree, Agree+ and Agree++. These changes are made using **Analysis Options** form.

	Disagree	Agree	Agree+	Agree++	BLANK	DOUBLE	Total
Disagree	0	0	0	0	0	0	0
Agree	0	0	0	1	0	0	1
Agree+	0	0	0	3	0	0	3
Agree++	0	0	0	4	1	0	5
BLANK	0	0	0	1	0	0	1
DOUBLE	0	0	0	0	0	0	0
Total	0	0	0	9	1	0	10

After generating reports, you can print them by pressing Print button and then print icon in preview window. For example the following picture shows the preview of the last cross tabulation report:



Print Preview

Cross Tabulation Report

Date Printed: 5/9/2007 5:03:16 PM Worksheet: SampleSurvey

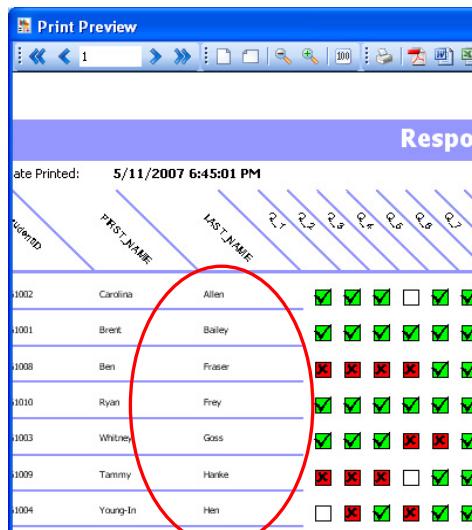
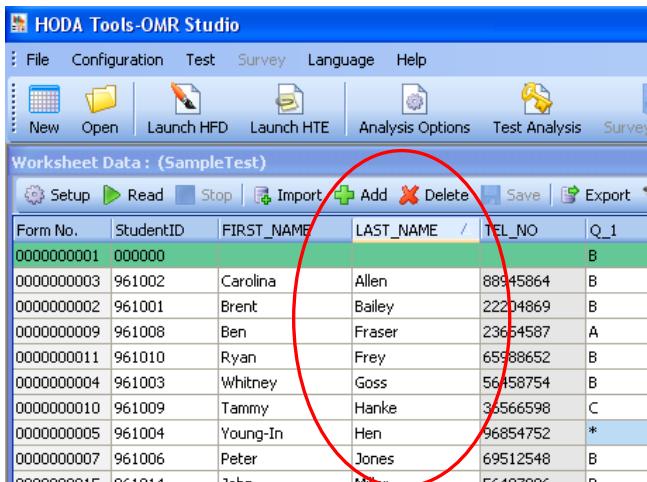
How he/she teches?

Does he/she comes on time?	Disagree	Agree	Agree+	Agree++	BLANK	DOUBLE	Total
Disagree	0	0	0	0	0	0	0
Agree	0	0	0	1	0	0	1
Agree+	0	0	0	3	0	0	3
Agree++	0	0	0	4	1	0	5
BLANK	0	0	0	1	0	0	1
DOUBLE	0	0	0	0	0	0	0
Total	0	0	0	9	1	0	10

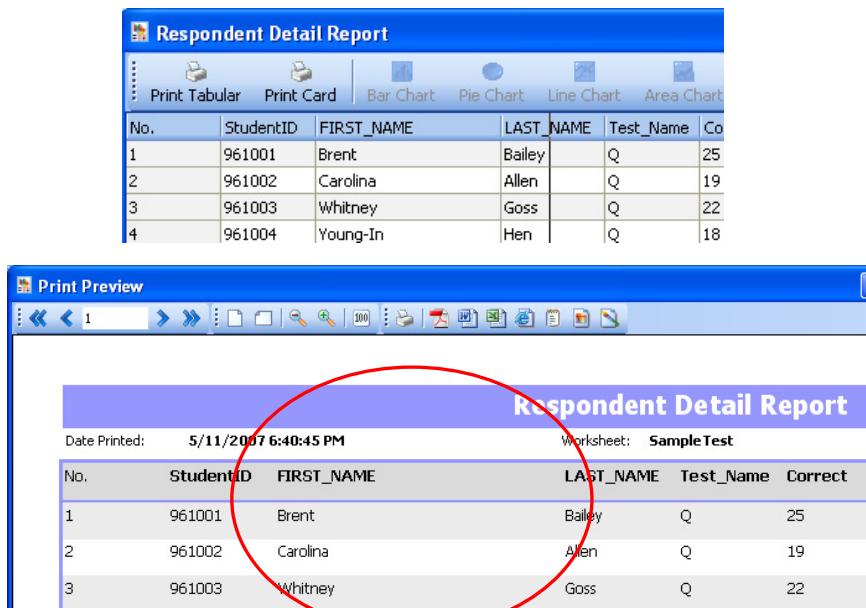
Generated Pages: 1

Some notes about printing reports:

- If you want to print report records sorted based on one of the fields, before run the report sort the data grid based on your desired column. For example in the following picture the worksheet is sorted based on the LAST_NAME column; in this case if you print the *Respondent Item Analysis* report, records will print on the LAST_NAME order.



- If the space for some columns is not enough to contain the data, you can increase the column widths in data grid, before you run the report. In this case the OMR Studio uses from the grid column width to print the report. For example in the following picture, the width of the FIRST_NAME column in *Respondent Detail Report* is increased and in result the space for this column is increased in printed report.



Respondent Detail Report

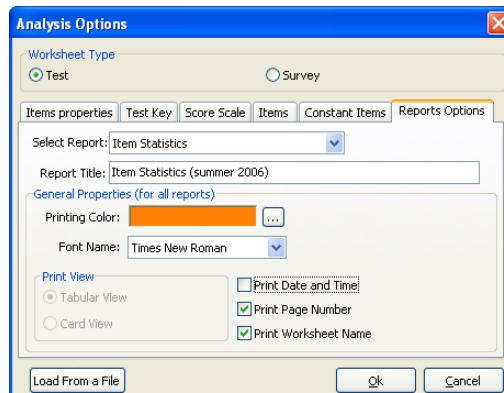
No.	StudentID	FIRST_NAME	LAST_NAME	Test_Name	Correct
1	961001	Brent	Bailey	Q	25
2	961002	Carolina	Allen	Q	19
3	961003	Whitney	Goss	Q	22
4	961004	Young-In	Hen	Q	18

Print Preview

Date Printed: 5/11/2007 6:40:45 PM Worksheet: Sample Test

No.	StudentID	FIRST_NAME	LAST_NAME	Test_Name	Correct
1	961001	Brent	Bailey	Q	25
2	961002	Carolina	Allen	Q	19
3	961003	Whitney	Goss	Q	22

- You can customize the appearance of each report using **Report Options** page in **Analysis Options** form:



For example in this picture the Item Statistics report printed based on the customized title, color schema and font.

The screenshot shows a 'Print Preview' window with a toolbar at the top containing various icons for file operations. The main area displays a table titled 'Item Statistics (summer 2006)' with the following data:

No.	Test Name	Filled	Missed	Average	Variance	St. Dev	St. error	Max	Min	Median	Range	Sum	SumSqr
1	Q_1	12	3	1.83	0.47	0.69	0	3	0	2	3	22	46
2	Q_2	13	2	2.69	0.37	0.61	0	3	0	3	3	35	99
3	Q_3	14	1	3.57	1.1	1.05	0	4	0	4	4	50	194
4	Q_4	13	2	2.69	0.52	0.72	0	4	0	3	4	35	101
5	Q_5	14	1	3	0.14	0.38	0	4	0	3	4	42	128
6	Q_6	15	0	4	0	0	0	4	4	4	0	60	240
7	Q_7	15	0	2	1.47	1.21	0	4	1	2	3	30	82

At the bottom left, it says 'Generated Pages: 1'.

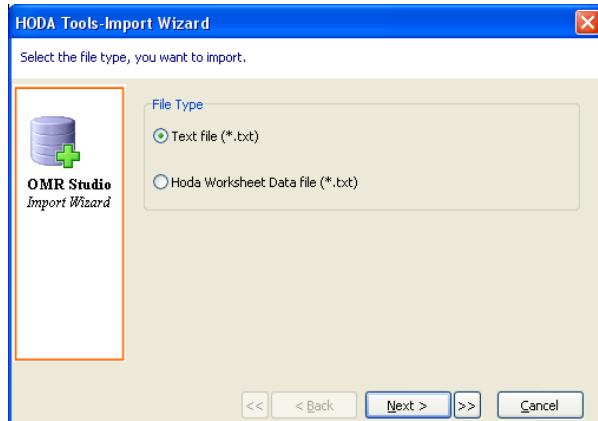
4 Import and Export

When you create or open a worksheet, you can import data to it, from other worksheets or text files. Also it is possible to export worksheet data to other file formats for archive, print, publish or more processing purposes. In this chapter a detail description of import and export processes will be discussed.

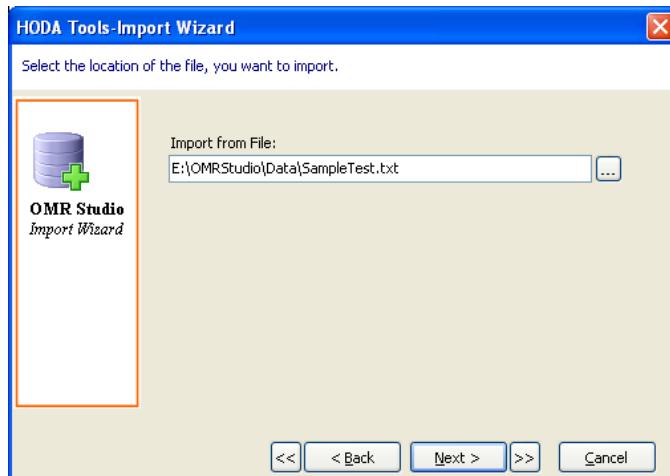
Import

When a worksheet is opened, click on the Import button in worksheet toolbar. The Import wizard will appear. In the first step you must specify the file type, you want to import. There are two possibilities:

- **Text file:** you can import data from two type of text files include:
 - CSV files which fields are separated with a separator like comma, tab and so on.
 - Flat text files which there is no any spaces between fields, but all fields have fixed length.
- **HODA Worksheet Data file**

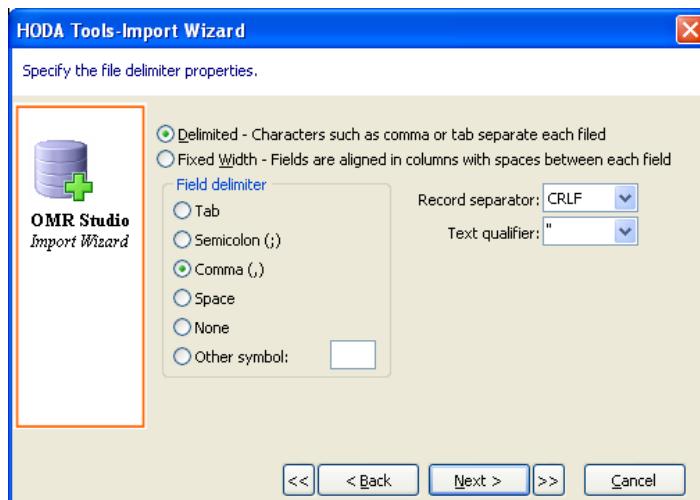


In the next step you must select the file you want to import.

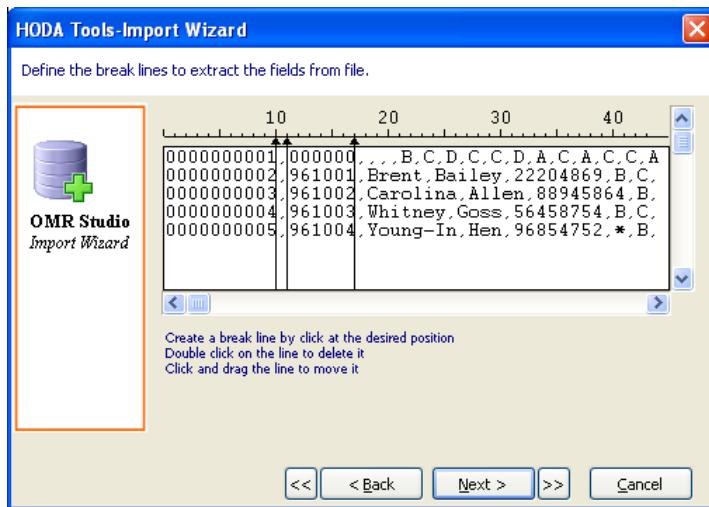


In the next step you should specify the delimiter properties of the file. For HODA Worksheet file and for CSV files you must select the Delimited option and for flat text files you must select the Fixed Width option. If you select Delimited type, you should select a separator for field separation.

NOTE: for HODA Worksheet files, always select the Comma as separator.

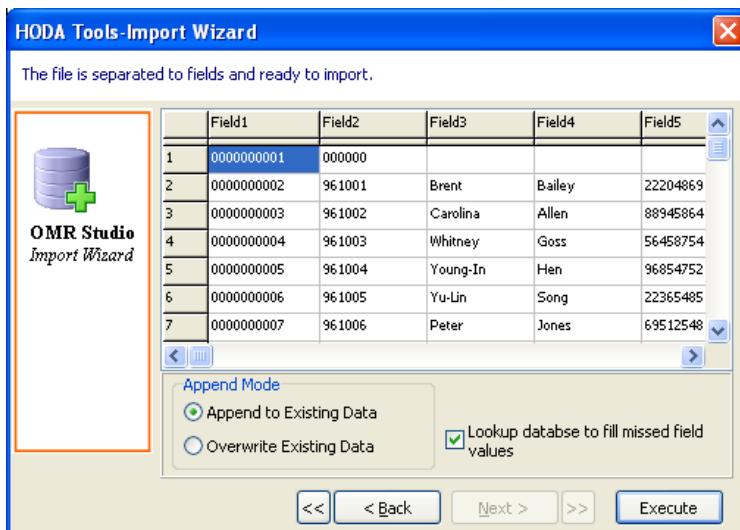


If you select the Fixed Width as text file type, you must specify the field positions by inserting break lines. Just click on the positions you want to separate, to inserting the break lines.



In the final step, the Import Wizard extracts data fields from the file and shows them. If the field separation is correct, you must specify the two extra options:

- **Append Mode**, if you select *Append to Existing Data*, the extracted data fields will add at the end of the worksheet. And if you select *Overwrite Existing Data*, the old records will remove from the worksheet and only new records will add to the worksheet.
- **Lookup database to fill missed field values**, if there are some lookup fields in your worksheet template (HTE or Manual) and the imported data does not contain these extra fields, you can check this option to fill these missed fields automatically by OMR Studio.



At the end press on **Execute** button to start importing process.

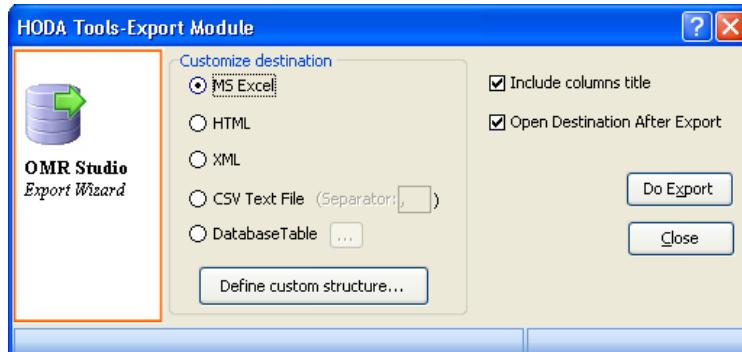
Export

It is possible to send worksheet data (also report data) to other file formats like Excel or database tables for more processing. To export worksheet data, press on the **Export** button on the worksheet toolbar and to export report data, generate the report and press on the **Export** button in generated report toolbar.

Here there are some sample export scenarios to introduce you the capabilities of the export module.

Example 1: Send worksheet data to Excel

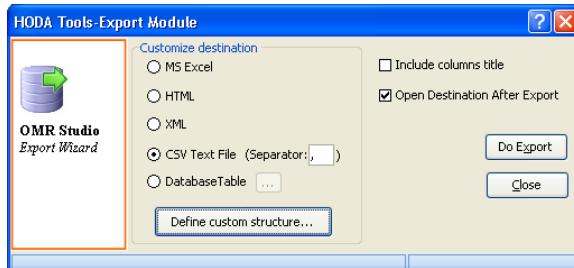
Press on the Export button on the worksheet toolbar. The Export Module will appear. Select the MS Excel as the export destination. Check the *Include columns title* and *Open Destination After Export*. The wizard will ask you to enter a name for the generated file. Enter the file name and Press on the Do Export button. The export will start and at the end of process, will open the generated excel file in MS Excel.



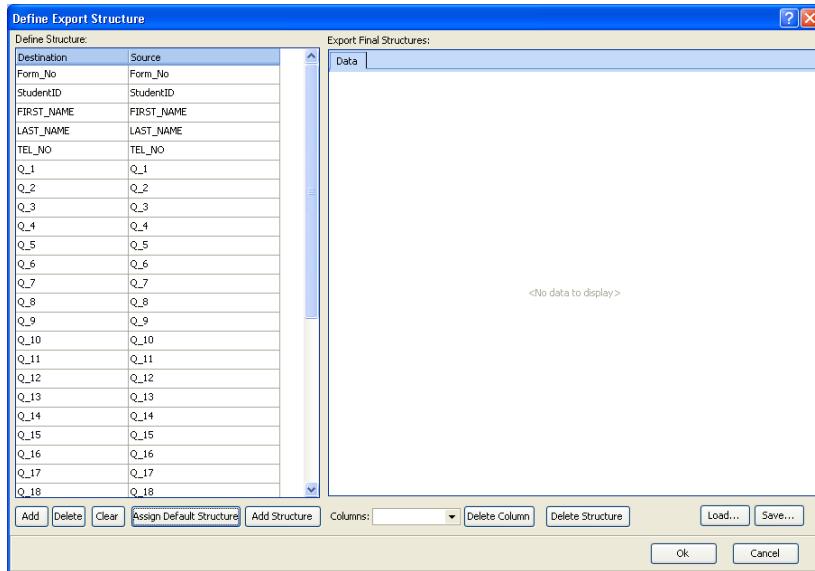
	A	B	C	D	E	F	G	H	I	J	K	
1	Form No.	StudentID	FIRST_NAME	LAST_NAME	TEL_NO	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7
2	0000000001	0000000				B	C	D	C	D	A	
3	0000000002	961001	Brent	Bailey	22024869	B	C	D	C	D	A	
4	0000000003	961002	Carolina	Allen	88945864	B	C	D	*	C	D	B
5	0000000004	961003	Whitney	Goss	56458754	B	C	D	B	B	D	A
6	0000000005	961006	Peter	Jones	69512548	B	C	D	A	*	D	A
7	0000000006	961007	Trevor	Shields	23234585	B	C	D	C	C	D	A
8	0000000007	961008	Ben	Fraser	23654587	A	A	C	B	A	D	C
9	0000000008	961009	Tammy	Hanke	36566598	C	B	?	*	D	D	A
10	0000000009	961010	Ryan	Frey	65988652	B	C	D	C	B	D	D
11	0000000010	961011	Blake	Rodgres	69689522	*	C	*	C	C	D	C
12	0000000011	961012	Scott	Tiger	56467884	?	C	D	C	D	D	A
13	0000000012	961013	Maggie	Spilger	87885489	B	C	D	C	D	D	D
14	0000000013	961014	John	Miller	56487896	B	*	D	C	C	D	A
15	0000000014	961015	Rebecca	Stack	56468977	*	C	C	C	C	D	D
16												

Example 2: Link the FIRST_NAME and LAST_NAME fields together and export to text file

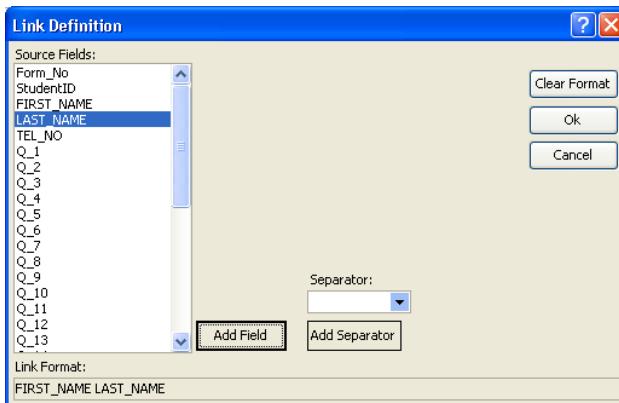
Open the Export Module. Select *CSV Text File* as destination.



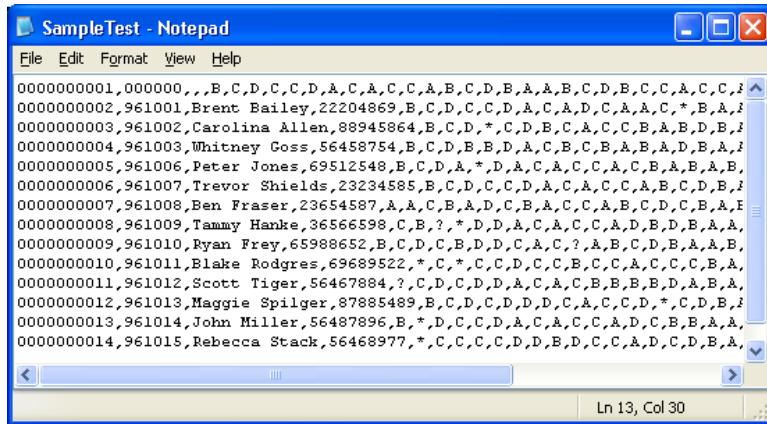
Click on the **Define Custom Structure** button. The *Define Export Structure* will appear. Click on the **Assign Default Structure** button.



Click on the LAST_NAME row and then press on the **Delete** button. Select the FIRST_NAME row and Source column. Press on the **...** button. The *Link Definition* form will appear. Select FIRST_NAME from *Source Fields* and press on **Add Field** button. Enter a SPACE as separator in *Field Separator* and press on **Add Separator** button. Select the LAST_NAME field and click on **Add Field** button.



Click on **Ok** button to close *Link Definition* form. Click on **Add Structure** button. Click on **Ok** button. Click on the **Do Export** button. The export process will start and at the end, will show the result.



Example 3: Send the Item Statistics report to a Paradox table

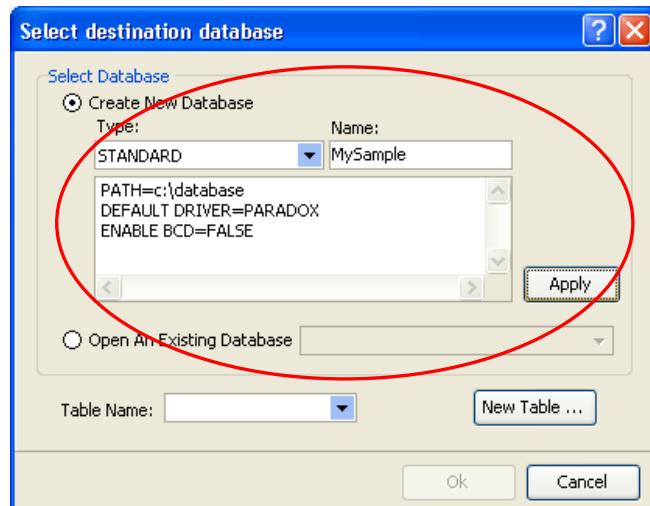
Paradox is a standard and popular flat database system. In this example we want to send the Item Statistics report data to a paradox table. To do this, follow these steps:

- 1-Generate the Item Statistics report.
- 2-Click on the **Export** button on the generated report form.

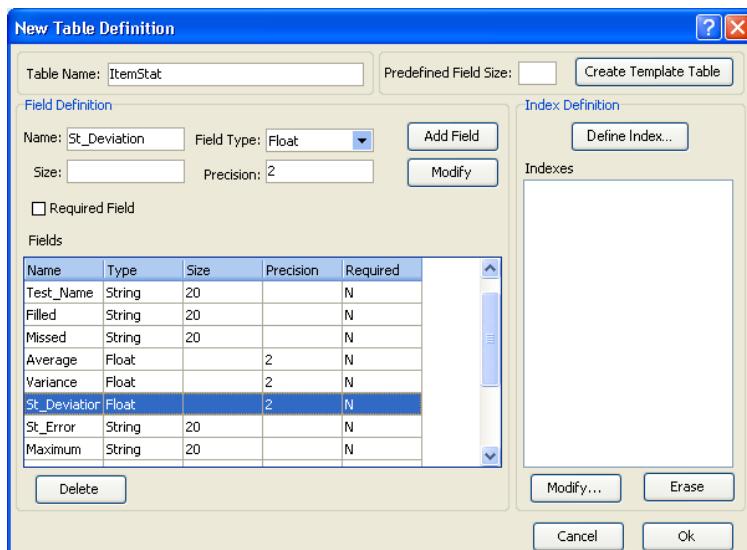


- 3-Select **Database Table** as destination and click on the **...** button to select the database type and table.
- 4-Create on **Create New Database** radio button. Select STANDARD as database type and enter SampleTest for database name. For the database parameters enter the path you want to create the database file; for example enter 'c:\database'.

5-Click on the **Apply** button. Now the database is created and ready to define tables.



6-Click on the **New Table** button. The *New Table Definition* form will appear. Enter the ItemStat for the table name. Click on the **Create Template Table** button to create the table. If you want you can change the default table fields. For example in this scenario, the type for Average, Variance and St_Deviation are changed to float with 2 decimal precision.



7-click on the Ok button.

8-Click on the **Define Custom Structure** button.

9-Click on the **Assign Default Structure** button. Check that all destination fields are connected to the source fields.

10-Click on the **Add Structure** button.

10-Click on the **Ok** button.

11-Click on the **Do Export** button.

21-The database table will be generated and displayed.

Table Data

No	Test_Nai	Filled	Missed	Average	Variance	St_Deviz	St_Error	Maximum	Minimum	Mean
21	Q_21	14	0	1	0	0	0	1	1	1
20	Q_20	14	0	1	0	0	0	1	1	1
19	Q_19	14	0	1	0	0	0	1	1	1
18	Q_18	11	3	1.27	0.07	0.27	0	1	1	1
17	Q_17	14	0	1	0	0	0	1	1	1
16	Q_16	14	0	1	0	0	0	1	1	1
15	Q_15	13	1	1.08	0.01	0.08	0	1	1	1
14	Q_14	14	0	1	0	0	0	1	1	1
13	Q_13	12	2	1.17	0.03	0.17	0	1	1	1
12	Q_12	14	0	1	0	0	0	1	1	1
11	Q_11	14	0	1	0	0	0	1	1	1
10	Q_10	14	0	1	0	0	0	1	1	1
9	Q_9	14	0	1	0	0	0	1	1	1
8	Q_8	14	0	1	0	0	0	1	1	1
7	Q_7	14	0	1	0	0	0	1	1	1
6	Q_6	14	0	1	0	0	0	1	1	1
5	Q_5	14	0	1	0	0	0	1	1	1
4	Q_4	13	1	1.08	0.01	0.08	0	1	1	1
3	Q_3	11	3	1.27	0.07	0.27	0	1	1	1
2	Q_2	12	2	1.17	0.03	0.17	0	1	1	1
1	Q_1	11	3	1.27	0.07	0.27	0	1	1	1

Number of records: 30

Application Shortcuts

Shortcut	Description
Ctrl+N	Create a blank worksheet using a template(HTE file) or define
Ctrl+O	Open an existing worksheet
Ctrl+Insert	Add a blank row at the end of current worksheet
F3	Start the reading process
F5	Stop the reading process
F9	Import data from a text file or an existing worksheet to the current worksheet
Ctrl+Delete	Delete the selected row from current worksheet
Ctrl+L	Lock the worksheet cells and prevent to modify data
Ctrl+F	Find and replace in worksheet cells
Ctrl+S	Save the last changes made on the worksheet
F10	Filter data
F11	Deactivate the filter
F12	Export the worksheet data to other formats

Expanding knowledge One BUBBLE at a time . . .

